K1, K2, K8
PRESSURE TRANSDUCER INSTRUCTION SHEET

ASHCROFT®

⚠ WARNING! READ ⚠ BEFORE INSTALLATION

1. GENERAL:
A failure resulting in injury or damage may be caused by excessive overpressure, excessive vibration or pressure pulsation, excessive instrument temperature, corrosion of the pressure containing parts, or other misuse. Consult Ashcroft Inc., Stratford, Connecticut, USA before installing if there are any questions or concerns.

2. OVERPRESSURE:
Pressure spikes in excess of the rated overpressure capability of the transducer may cause irreversible electrical and/or mechanical damage to the pressure measuring and containing elements.

Fluid hammer and surges can destroy any pressure transducer and must always be avoided. A pressure snubber should be installed to eliminate the damaging hammer effects. Fluid hammer occurs when a liquid flow is suddenly stopped, as with quick closing solenoid valves. Surges occur when flow is suddenly begun, as when a pump is turned on at full power or a valve is quickly opened.

Liquid surges are particularly damaging to pressure transducers if the pipe is originally empty. To avoid damaging surges, fluid lines should remain full (if possible), pumps should be brought up to power slowly, and valves opened slowly. To avoid damage from both fluid hammer and surges, a surge chamber should be installed.

Symptoms of fluid hammer and surge's damaging effects:

- Pressure transducer exhibits an output at zero pressure (large zero offset).
- Pressure transducer output remains constant regardless of pressure
- In severe cases, there will be no output.

FREEZING:

Prohibit freezing of media in pressure port. Unit should be drained (mount in vertical position with electrical termination upward) to prevent possible overpressure damage from frozen media.

3. STATIC ELECTRICAL CHARGES:
Any electrical device may be susceptible to damage when exposed to static electrical charges. To avoid damage to the transducer observe the following:

- Operator/installer should follow proper ESD (electrostatic discharge) protection procedures before handling the pressure transducer.

Note: The shield and drain wire in the cable (if supplied) is not connected to the transducer body, and is not a suitable ground.

MOUNTING
The transducer requires no special mounting hardware, and can be mounted in any plane with negligible position error.

Although the unit can withstand normal vibration without damage or significant output effects, it is always good practice to mount the transducer where there is minimum vibration.

For units with NPT type pressure fittings apply teflon tape or an equivalent sealant to the threads before installing.

When tightening, apply a wrench to the hex wrench flats located just above the pressure fitting. **DO NOT** tighten by using a pipe wrench on the housing.

POWER SUPPLY – K1 Models Only
The supply voltage for the 1-5 and 1-6 Vdc output transducers must be within the range of 10 to 36 Vdc. The maximum supply voltage for a 4-20mA current output transducer is 36 Vdc while the minimum supply voltage is dependent upon the loop resistance of the circuit. The load limitation chart shows the minimum supply voltage (V_{min}) required for a given loop resistance (R_{LOOP}).

NOISE
For minimum noise susceptibility, avoid running the transducer's cable in a conduit that contains high current AC power cables. Where possible avoid running the cable near inductive equipment.

SHIELD WIRING
Connect the braided shield to the guard terminal on the reading instrument (meter, etc.) if available or to ground or to the power supply negative terminal.

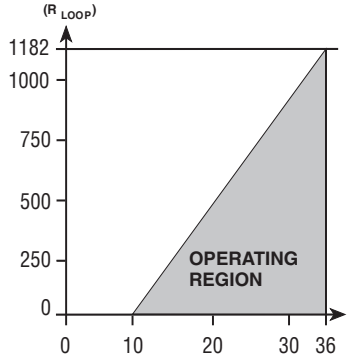
ADJUSTMENT POTENTIOMETERS
The zero and span pots are accessible through the top of the case. Loosen the four screws and separate the top carefully. The zero pot is marked with a white dot.

VENT TUBE
The cable will have a clear Teflon vent tube that's required at pressure below 500 psi to provide atmospheric reference. The open end should be placed in a dry area.

OUTPUT – K8 Only
Sensitivity may be from 6 mV/V to 18 mV/V for any individual transducer. Zero offset is within ±3 mV/V. Output is proportional to supply voltage (ratiometric).

EXCITATION – K8 & K2
For proper operation a voltage within the range of 5 to 10 Vdc must be applied between the transducer's supply terminals.

Load Limitations 4-20mA Output Only



V_{min} = 10V+ (.022A x R_L)
$R_L = R_S + R_W$
R_L = Loop Resistance (ohms)
R_S = Sense Resistance (ohms)
R_W = Wire Resistance (ohms)

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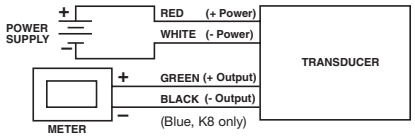
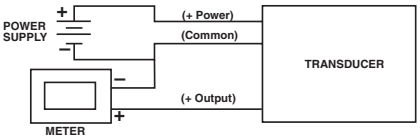
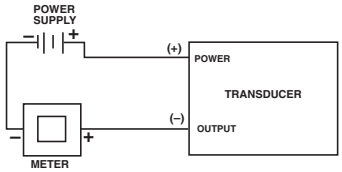
Wiring Diagrams for All Transducers



4-Wire Ratiometric (mV/V)



3-Wire Voltage

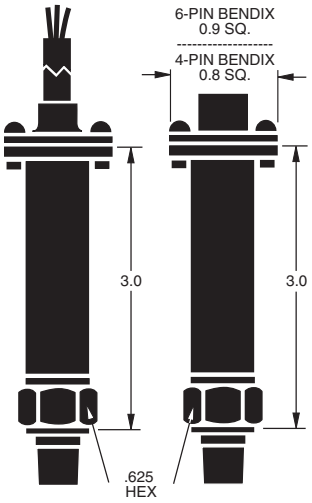


4-20 mA

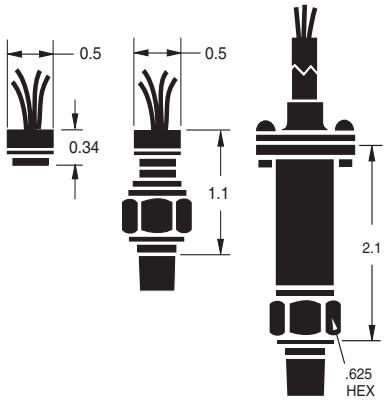
Dimensions

NOTE: All dimensions are decimal inches

K1, K2 Transducers

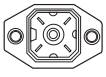


K8 Transducers

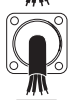
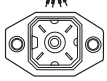


K1 Transducers – Electrical Connections

Voltage Output Units 1-5, 1-6 Vdc

	CONNECTOR TYPE		MATING CONNECTOR CABLE CODING
	**Hirschmann Type**		
	PIN 1	= + Power	Red
	PIN 2	= Common	Black
	PIN 4	= Output	Green
	Bendix 4-Pin, 6-Pin		
	Pin A	= + Power	Red
	Pin B	= Output	Green
	Pin D	= Common	White
	Cable Type F2		
	Red	= + Power	
	White	= Common	N/A
	Green	= Output	
	Cable Type C1		
	Red	= + Power	
	White	= Common	N/A
	Green	= Output	

Current Output Units 4-20mA

	CONNECTOR TYPE		MATING CONNECTOR CABLE CODING
	Cable Type F2		
	Red	= + Power	N/A
	Black	= – Power	
	**Cable Type C1**		
	Red	= + Power	N/A
	Black	= – Power	
	**Hirschmann Type**		
	Pin-1	= + Power	Red
	Pin-2	= – Power	Black
	Bendix 4-Pin, 6-Pin		
	Pin A	= + Power	Red
	Pin B	= – Power	Green

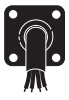
K2 Transducers – Electrical Connections

Ratiometric (mV/V)

	CONNECTOR TYPE		MATING CONNECTOR CABLE CODING
	Cable Type F2		
	Red	= + Power	
	White	= – Power	N/A
	Green	= + Output	
	Black	= – Output	
	Cable Type C1		
	Red	= + Power	
	White	= – Power	N/A
	Green	= + Output	
	Black	= – Output	
	Bendix 4-Pin		
	Pin A	= +Power	Red
	Pin B	= +Output	Green
	Pin C	= – Output	Black
	Pin D	= – Power	White
	Bendix 6-Pin		
	Pin A	= +Power	Red
	Pin D	= – Power	White
	Pin B	= +Output	Green
	Pin C	= – Output	Black
	Pin E	= Shunt Cal.	
	Pin F	= Shunt Cal.	

K8 Transducers – Electrical Connections

Ratiometric (mV/V)



Cable Type F2

Red	=	+ Power
White	=	– Power
Green	=	+ Output
Black	=	– Output

4 Inch Leads

Red*	=	+ Power
White	=	– Power
Green	=	+ Output
Blue	=	– Output
*Orange	=	+ Power, RoHS compliant versions

Special Wiring – See "X" Variation On Unit Label

Variation	Wire Hookup		
XTQ	Red	=	+ Power
	Black	=	Common
	White	=	Output
XTG	Red	=	+ Power
	Black	=	Common
	Green	=	Output

Recalibration Instructions:

1. **Apply 0% Full Scale Pressure.**
2. **Set the output using the *Zero adjustment potentiometer*.**
3. **Apply 100% Full Scale Pressure.**
4. **Set the output using the *Span adjustment potentiometer*.**
5. **Repeat steps 1 thru 4 as necessary.**

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